

ABSTRACT OF THE DISCLOSURE

A method and device for regeneration of a particulate filter situated on an exhaust line of an engine. The method determines a soot burden on the filter based on knowledge of a differential pressure ΔP at ends of the filter and triggers combustion of the soot when the burden reaches a predetermined level. A pressure $P_{\text{downstream}}$ downstream from the filter is modeled without use of a pressure sensor and P_{upstream} is determined without use of a pressure sensor using the relationship $P_{\text{upstream}} = \Delta P + P_{\text{downstream}}$. The burden is determined by the relationship $\Delta P = f(Q_{\text{vol}}, \text{mass of soot})$, with $Q_{\text{vol}} = K \times (Q_{\text{air}} + \rho_{\text{fuel}} \times Q_{\text{carb}}) \times N \times T_{\text{upstream}} / P_{\text{upstream}}$, where K is a constant, Q_{air} denotes a mass flow of air, ρ_{fuel} denotes a density of the fuel, Q_{carb} denotes a volumetric quantity of fuel, N denotes an rpm of the engine, and T_{upstream} denotes an absolute temperature measured upstream from the filter.